

## BC's High Tech Commodity Trade

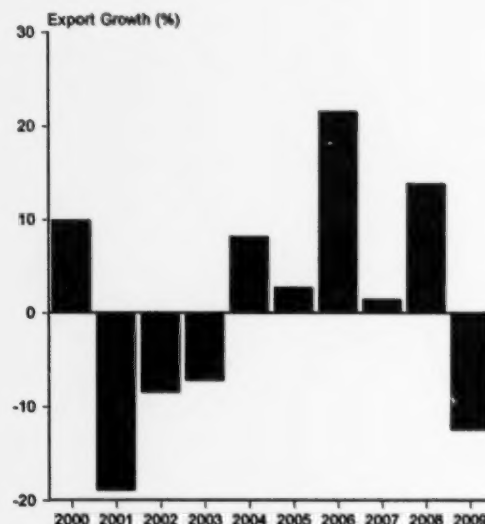
International trade is an important aspect of British Columbia's high technology sector, as reflected in the high volume of two-way trade.<sup>1</sup> The domestic market for high technology goods<sup>2</sup> generally does not have sufficient volume to achieve the economies of scale needed to remain competitive; therefore, access to international markets is extremely important as it allows B.C. producers of high tech goods to focus on market niches. At the same time, B.C. manufacturers do not produce enough of some types of high technology equipment to satisfy the domestic demand from either consumers or the high tech industry itself, and as a result, large volumes of goods are imported into the province.

The value of British Columbia high technology goods exports dropped 12.5% in 2009, to \$865.2 million. The decline was likely the result of the global economic downturn, which dampened demand for goods of any description, including high technology products. The slump in high tech exports was the largest one-year drop since the dot.com crash in 2001. Nevertheless, B.C.'s high tech sector exports fared far better than B.C.'s overall goods exports, which dropped 24.3%. As a result, the proportion of B.C.'s overall exports comprised of high technology goods climbed to 3.4%, the highest share ever recorded.

<sup>1</sup> This article is an excerpt from the *Profile of the British Columbia High Technology Sector 2010 Edition*, which will be released in late-August.

<sup>2</sup> High technology goods referred to in this document are based on a list developed by the U.S. Bureau of the Census and modified to fit Canadian conditions. See Appendix B of the *Profile* report for more information.

BC's exports of high tech goods fell in 2009



Source: BC Stats

The bulk of B.C.'s high tech exports are concentrated in just a few commodity groups.<sup>3</sup> Computers and telecommunications equipment constitute the largest group of high technology goods exported from British Columbia. Almost half (46%) of the province's high tech exports are comprised of goods from this commodity group, with international shipments of computers and telecommunications equipment amounting to \$401.0 million in 2009. This was down 3.7% from a year earlier, a drop of \$15.4 million.

Aerospace products and life sciences goods together represented another third of B.C.'s high technology commodity exports. British Columbia exporters shipped \$142.8 million worth of

<sup>3</sup> For information on high technology commodity groups, see Appendix B of the *Profile* report.

aerospace products and \$141.2 million in life sciences goods to international destinations in 2009. This represented a 24.6% drop from 2008 for the aerospace commodities group and a 7.0% increase for life sciences products.

The largest decline in exports, both in value and percentage, was in shipments of opto-electronics, which slumped by \$76.0 million, or 61.2%. This drop wiped out the 149.8% jump in exports from a year earlier, such that the value of exports of opto-electronics was only slightly lower than that recorded in 2007. A substantial increase in shipments of photosensitive semiconductor devices and/or light emitting diodes, mainly to Germany, was responsible for the one-year jump in exports of opto-electronics in 2008.

Exports of computer integrated manufacturing goods fell 18.2%, but shipments of electronics almost tripled in value. The rise in exports of electronics was due to a considerable jump in shipments of "smart cards" to the United States.

British Columbia generally does not export significant volumes of goods from the remaining commodity groups.

In 2009, the United States was the destination for approximately 67% of British Columbia's high technology commodity exports. B.C.'s high tech sector is proportionately more dependent on the U.S. market for export sales than are the province's exports overall. In 2009, only 51% of B.C.'s total goods exports were shipped to the United States. However, the ratio of high technology exports headed to the United States is still well down from its peak of 84% in 2000. Although the overall value of high technology goods shipped to the U.S. is also down from that peak year, mostly due to the

bursting of the high tech bubble in 2001, most of the drop in share is due to diversification to other markets.

### B.C. High Technology Exports by Destination - 2009

	\$ millions	% change 2008/2009
United States	582.9	-5.7
European Union	126.9	-34.1
Germany	27.8	-65.0
Italy	26.6	15.1
United Kingdom	21.1	-26.2
Pacific Rim	86.8	-14.1
Australia	16.6	25.5
Hong Kong	14.7	70.2
Mainland China	13.7	-36.3
Rest of the world	68.6	-10.6
<b>Total</b>	<b>865.2</b>	<b>-12.5</b>

Shipments to the European Union, in particular, have grown significantly over the last decade. The European Union received 7% of B.C.'s high tech exports in 2000, with that share climbing to 19% in 2008 before slipping back to 15% in 2009. Exports to Pacific Rim countries, which dropped to their lowest levels in the early part of the decade, have rebounded somewhat to roughly 10% of exports, but are still well below peak levels attained in the mid-nineties.

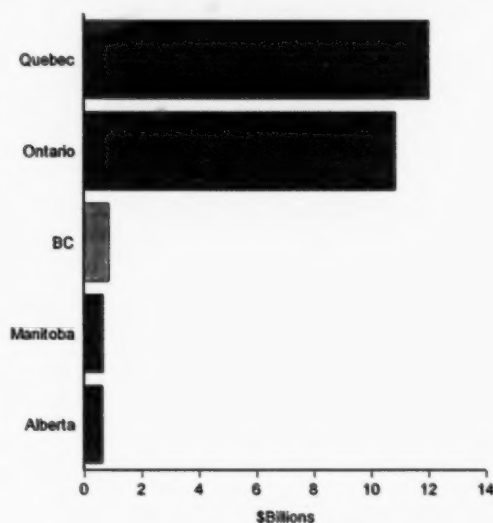
The value of high technology exports to B.C.'s largest market, the United States, fell 5.7% in 2009, less than half the rate of decline of high tech exports overall (-12.5%). Shipments of high tech products to the European Union plunged 34.1% in 2009, but the decline was largely the result of the return to normal in exports of opto-electronics to Germany after the temporary surge in 2008.

Shipments to the Pacific Rim slumped 14.1% in 2009, despite a 70.2% jump in exports to Hong

Kong and a 25.5% growth in shipments to Australia. Those gains were more than offset by double-digit drops in high tech exports to Japan (-52.5%), Mainland China (-36.3%), South Korea (-38.5%) and Taiwan (-54.1%).

The value of British Columbia's exports of high technology goods is relatively small compared to Canada's manufacturing hubs of Quebec and Ontario. Given the relative size of their economies, one would expect B.C. to lag behind these two provinces; however, even taking that into account, B.C.'s \$0.9 billion in exports of high tech goods was still comparatively modest.

BC's exports of high tech goods are relatively small compared to those from Central Canada



Source: BC Stats

Among the Canadian provinces, Quebec was the top exporter of high technology merchandise, shipping approximately \$12.0 billion worth of high tech goods in 2009. Quebec's world-class aerospace industry was the source of the bulk of these goods (76%). High tech products comprise a far greater share of Quebec's overall commodity exports compared to other

provinces. In 2009, 21% of the province's goods exports consisted of high tech products, compared to less than 8% for Canada as a whole. The only other province to exceed the Canadian average was Ontario, at 9%.

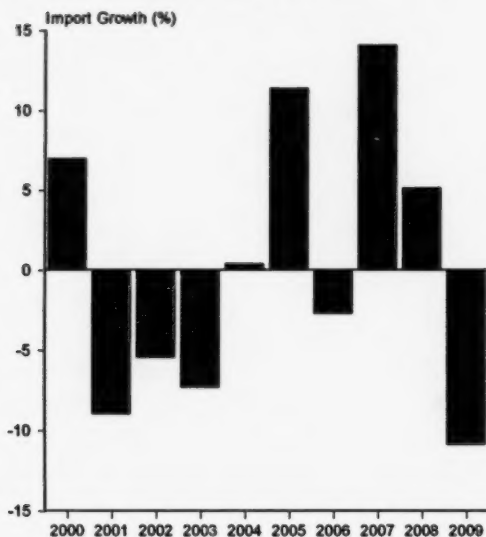
Ontario ranked second behind Quebec in terms of high tech exports, shipping \$10.9 billion worth of high tech goods in 2009. Combined, these two provinces were the source of 90% of Canada's high technology commodity exports.

In 2009, high tech goods made up just over 3% of B.C.'s overall commodity exports, but the \$0.9 billion worth of goods shipped from the province was enough to rank B.C. third in the country. Prior to 2008, British Columbia had almost always trailed behind Alberta (with the exception of 1993), but three consecutive years of double-digit declines have seen Alberta's high tech exports almost halved. This allowed B.C. to leap ahead of Alberta in 2008 and retain its third place ranking in 2009. Alberta also slipped behind Manitoba, which increased its high tech exports by 21.4% in 2009, driven by a substantial rise in shipments of biotechnology and aerospace goods. Manitoba was the only one of the five high tech provinces (BC, Alberta, Manitoba, Ontario and Quebec produce the bulk of Canada's high tech goods) to experience growth in exports in 2009.

Among the high tech provinces, Alberta suffered the largest drop in value of high tech exports in 2009, slumping 25.7%, as shipments of opto-electronics and computers and telecommunications products were halved. British Columbia had the second largest decline, at 12.5%, followed by Quebec (-9.0%) and Ontario (-5.8%). For Canada as a whole, high technology exports fell 7.5%.

Similar to exports, the downturn in the economy also affected British Columbia's imports of high technology goods. In 2009, there was a 10.9% drop in the value of high technology goods imported into British Columbia. This was the largest decline since at least 1990, the earliest year for which data are available.

Imports of high tech goods into BC dropped significantly in 2009



Source: BC Stats

In 2009, high tech imports from the United States fell 13.7% to their lowest level since 1993; however, the United States remained B.C.'s most significant source of imported high tech goods, despite the fact that imports from that country have declined in seven of the last ten years.

For the first time since at least 1990, the earliest year for which data are available, imports from Mainland China dropped, slipping 1.3%. Nevertheless, with almost \$1.1 billion of high tech goods imported into the province from that country in 2009, China trails only the U.S. in terms of the value of imports of high tech mer-

chandise into British Columbia. The importance of China as a source for B.C. imports of high tech goods has only developed in the last several years. In 1999, Mainland China was the origin of only 2% of B.C.'s high tech commodity imports. By 2009, 25% of high tech imports into the province were sourced from China.

A significant amount of high tech goods imported into the province is used as input into B.C.'s own high technology manufacturing. However, a large portion of the imports from China are consumer goods such as portable computers and cellular telephones, which suggests that at least some of the growth in imports is consumer-driven and not solely composed of purchases of input components for manufacturing activities of the domestic high tech sector.

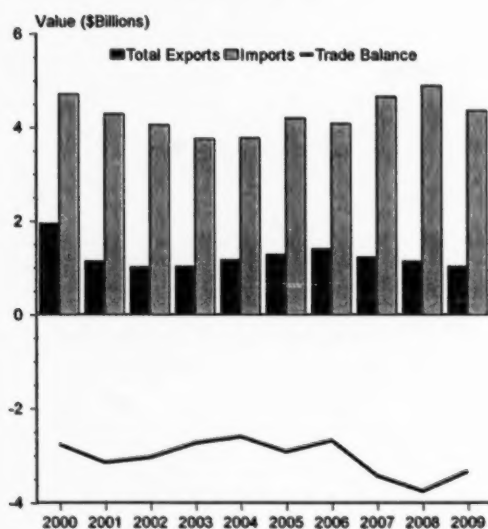
There is far more diversification in terms of the origin of high tech imports into B.C. than in the destinations of B.C.'s high tech exports. As a result of the downward trend in imports from the United States, that country's share of B.C.'s high tech import market has shrunk to just 30% in 2009, from well over half just ten years earlier. At 25%, Mainland China ranks second as a source for B.C.'s high tech imports, followed by Mexico with 11%. The \$496.2 million in high tech goods imported from Mexico in 2009 exceeded the value of high tech goods imported from all of the European Union countries combined (\$465 million, or just under 11%).

As with exports, computer and telecommunications goods are by far the largest category of high technology imports, comprising 58% of high tech product imports, or \$2.5 billion. At \$0.6 billion, imports of second-ranked life sciences products were valued at just a fraction of that of computers and telecommunications goods, representing just 13% of B.C.'s high technology imports.

The value of imports fell for most of the commodity groups, with the exception of those of which B.C. imports relatively little. The largest percentage decline was for imports of computer integrated manufacturing products, a drop of 23.8%. In terms of absolute numbers, imports of computers and telecommunications products experienced the largest slump, falling by \$319 million, or 11.3%.

British Columbia imports far more high technology goods than it exports and, as a result, the province runs a substantial trade deficit in these commodities. In 2009, this trade gap narrowed significantly as the drop in imports was far larger than the slump in exports. Nevertheless, the deficit was still \$3.3 billion, or nearly four times the total value of B.C.'s high tech exports. In 2009, the value of high technology goods imported into British Columbia was over five times that of high tech exports from the province.

BC has a substantial deficit in trade of high tech goods



Source: BC Stats

The growth in B.C.'s high tech exports to Mainland China has not kept pace with the phenomenal increase in imports from that country and, as a result, B.C.'s high tech goods trade deficit with China has climbed to over \$1 billion, making it British Columbia's largest high tech trade deficit. Prior to 2006, B.C.'s largest deficit was with the United States, but the downward trend in imports has whittled that deficit down to \$739.8 million in 2009 from a peak of almost \$1.5 billion in 1997. After China and the United States, the next largest deficit is with Mexico, at \$489.4 million, which exceeds the combined deficit with all countries of the European Union (\$307.9 million). B.C. exports very few high tech goods to Mexico, but imports a large amount, accounting for the substantial deficit.

As with overall commodity trade, the global economic downturn had a dramatic effect on trade in high technology goods. While high tech figures for 2010 have yet to be compiled, given the uptick in overall trade compared to 2009, it is likely that the high tech sector experienced some improvement as well.

